

REMARKS

For convenience in responding to the Action, the relevant headings set forth in the Action are identified below.

Claim Rejections - 35 USC § 112

Claim 1 has been amended to overcome the 35 U.S.C. § 112, second paragraph, rejection by deleting the term "i.e." and amending the claim to recite that the room temperature molten salt is an aliphatic quaternary ammonium salt of the formula (1).

Claim Rejections - 35 USC § 103(a)

Claims 1-9 are rejected as being obvious over Sato et al., U.S. Patent Application Publication No. 2007/0031729 ("Sato").

Initially, applicants note that U.S. Patent Application Publication No. 2007/0031729 is not a proper reference against the claims of the present application. Sato is not entitled to a date as a publication under 35 U.S.C. § 102(e) of the September 23, 2003, filing date of the parent application, No. 10/472,823, because the international application, No. PCT/JP02/02845, of which application No. 10/472,823 is the national stage, was not published in English. Therefore, the earliest possible effective date of Sato is its September 29, 2006, filing date. This date is later than the November 2, 2004, filing date of the international application on which the present application is based.

Removal of the rejection of the claims under 35 U.S.C. § 103(a) over Sato et al., U.S. Patent Application Publication No. 2007/0031729, is in order.

Applicants note that the Sato international application No. PCT/JP02/02845 was published on October 3, 2002, as WO 02/076924 and, therefore, is effective as a reference against the claims of the present application.

However, WO 02/076924 does not support the obviousness of claims 1-9 of the present application under 35 U.S.C. § 103(a). WO 02/076924 does not disclose an electrolytic solution for use in nonaqueous electrolytic lithium secondary cells as recited in claims 1-9 which contains a room temperature molten salt, which is an aliphatic quaternary ammonium salt of the formula (1), an organic solvent and a lithium salt of the formula (2), and in which the organic solvent contains vinylene carbonate (VC) in an amount of 1 to 5 wt. % based on the electrolytic solution.

The use in a nonaqueous electrolytic lithium secondary cell of the electrolytic solution of the present invention containing VC in an amount of from 1 to 5 wt. % based on the electrolytic solution provides unexpectedly superior performance characteristics as opposed to the use of an amount of VC outside this range. The superior properties are demonstrated by the data of Table 2 of the

application. (Applicants note that Table 2 was amended in a Preliminary Amendment [34(2)b amendment] filed with the application papers on May 3, 2006. In Comparative Examples 4 to 7, amounts were amended because the total amounts of all components were not 100 wt% in the original Table 2).

Referring to the data of amended Table 2, it can be seen that when VC is less than 1 wt% (Comparative Example 8), initial capacity and capacity retentivity are poor. When VC is more than 5 wt% (Comparative Examples 6 and 7), internal resistance is high (Comparative Example 6) or initial capacity and capacity retentivity are also poor (Comparative Example 7). These data support the non-obviousness of the electrolytic solution and nonaqueous electrolytic lithium secondary cell of the present invention over the disclosure of WO 02/076924.

The claims are also rejected under 35 U.S.C. § 103(a) over Kikuyama et al., JP 2004-247176 ("Kikuyama"), in view of Nakagawa et al., U.S. Patent Application Publication No. 2006/0068296 ("Nakagawa").

Kikuyama discloses an electrolytic solution containing at least one or more kinds of quarternary aliphatic ammonium salt expressed by the general formula: $NR^1R^2R^3R^4 X^1$ and one or more kinds of lithium salt expressed by the general formula: LiX^2 , wherein R^1

to R⁴ are hydrocarbon group having 1 to 8 carbon atoms and may have an ether group, or perfluoroalkyl group having 1 to 8 carbon atoms and may have an ether group, two of R¹ to R⁴ may form a ring, X¹ and X² are fluorine-containing anion.

Kikuyama discloses nothing concerning vinylene carbonate (VC).

Additionally, applicants note that Kikuyama was published on September 2, 2004, which is after the priority date, November 4, 2003, claimed in the present application. The claim to priority of the November 4, 2003, is being perfected by the submission herewith of an English translation of the Japanese priority application, No. 2003/374785, and a declaration of the translator that the translation is a full, true and faithful translation.

In the priority application the range of amount of VC of 1 to 5 wt% is supported by the description on page 18 of the organic solvent as preferably containing VC; the description on page 19 of the amount of solvent being preferably 1 to 40 wt.%, more preferably 1 to 30 wt.%, particularly preferably 1 to 20 wt.% and most preferably 1 to 10 wt.% and that, if less than 1 wt.%, "the film does not sufficiently form on the surface of the negative electrode, and producing the decomposition of the room temperature molten salt or insertion into the negative electrode material"; and the description of the use of an amount of VC of 5 wt% in Examples

1 and 2 (see Table 1).

Nakagawa refers to VC only in the "Background Art" portion of the specification.

Moreover, Nakagawa was published on March 30, 2006, which is after the priority date, November 4, 2003, claimed in the present application and is not an effective reference against the claims of the present application. The international filing date of Nakagawa is November 21, 2003. The international application, PCT/JP03/14896, was published June 17, 2004, as WO 2004/051784 A1, also after the priority date claimed in the present application.

Removal of the 35 U.S.C. § 103(a) rejection of the claims over Kikuyama in view of Nakagawa is in order and is respectfully requested.

The foregoing is believed to be a complete and proper response to the Office Action dated June 25, 2008, and is believed to place this application in condition for allowance. If, however, minor issues remain that can be resolved by means of a telephone interview, the Examiner is respectfully requested to contact the undersigned attorney at the telephone number indicated below.

In the event that this paper is not considered to be timely filed, applicants hereby petition for an appropriate extension of time. The fee for any such extension may be charged to our Deposit

PATENT APPLN. NO. 10/578,092
RESPONSE UNDER 37 C.F.R. §1.111

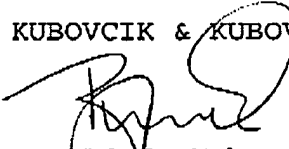
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Account No. 111833.

In the event any additional fees are required, please also
charge our Deposit Account No. 111833.

Respectfully submitted,

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Attachment: English translation of Japanese priority
application, No. 2003/374785, and a declaration of
the translator